

# Hidroeléctrica Papeles Elaborados S.A. (HPE)

**Location:** Pueblo Nuevo Vinas, Department of Santa Rosa

**Type:** Hydroelectric plant

**Size:** 8.2 MW installed capacity

**Funding:** Total: US\$12,400,000

Private: US\$12,400,000

**Objective:** To provide constant, inexpensive energy for a manufacturing facility, and subsequently to provide electricity to distribution companies.

**Duration:** 1999–2000

**Scale:** Rural

## Summary

A small, commercial paper company, HPE, brought energy to its facility by constructing a hydroelectric power plant nearby. Realizing a significant business opportunity, HPE brought 8.2 MW of additional capacity to the grid connection, providing approximately 42 GWh of electricity per year. Given the demands of the power system in Guatemala, if such renewable energy had not been provided, energy needs would likely have been met through thermal energy production. In addition, HPE completed one of the first international green certificate transactions involving a developing country, whereby a Dutch utility (Nuon) has committed to purchase 100% of its environmental benefits for a period of 10 years.

## In-Country Principles That Attracted Nondonor Financing

- Capacity building and informed decision making
- Public participation in, and support of, sustainable development



A key principle that helped attract the private financing was the effective coordination among sectors, between public and private actors, and across multiple geographic and institutional scales.

A management team independent of the government, the hiring and developing of staff with appropriate skills matched to the job, and stakeholder partnerships and exchanges also were important to attracting private-sector participants.

Important institution-building principles included privatization of the energy structure, and a comprehensive energy law that meets global norms and standards characterized by basic policies and priorities, and separate policy-making, ownership, and regulatory functions.

## Financing

Total project investment was US\$12,400,000. All funds came from private sources and included US\$5,400,000 from shareholders, US\$6,000,000 from the Central American Bank of Economic Integration (CABEI) and local banks, and US\$750,000 from the Corporación Financiera Ambiental (CFA), an environmental venture fund, and US\$250,000 from E+Co.

Capital costs included US\$6,800,000 for infrastructure and construction and US\$3,700,000 for power plant and equipment. Costs for studies, administration, legal, and engineering totaled US\$800,000.

Financing was 44% equity (from the shareholders) and 56% debt (from the other sources).

## The Project

The project consists of a small commercial hydroelectric power plant connected to the grid in Guatemala. Initially, the primary goal of the project was to supply energy to the nearby paper plant using a constant and inexpensive power source. As the company realized that there was a significant business opportunity associated with generating this power, it expanded the capacity and became a mainstream electricity supplier to Guatemalan distribution companies, which are privatized. The project transmitted lessons to traditional lending institutions, thereby facilitating access by new renewable energy ventures to bank financing.

## Technical Data

---

The project consists of two 5-MW “Francis” turbines and maximizes the hydroelectric generation of the Aguacapa River.

The HPE is generating approximately 42 GWh of electricity per year and is operating at 58% of installed capacity.

## Performance Data

---

The project has generated 400 jobs during the construction phase and 30 additional permanent jobs for operating and maintaining the facility in the town of Pueblo Nuevo Vinas.

Roughly 20 employees have been trained in turbine maintenance and related subjects.

The plant has reduced annual carbon dioxide (CO<sub>2</sub>) emissions by 10,000 tons, and a carbon emission transaction was made with the Dutch utility Nuon. The utility has committed to purchase 100% of the environmental benefits from HPE. This transaction represents one of the first international green certificate transactions involving assets in a developing country.

## Participants and Roles

---

Shareholders of HPE provided US\$5,400,000 in equity financing for the project. The CABI, local banks, and the environmental venture fund CFA provided US\$6,750,000. E+Co provided enterprise development services and a US\$250,000 loan, which leveraged US\$750,000 from CFA.



## Partner Contacts

---

Jaime Arimany, President  
Hidroeléctrica Papeles Elaborados, S.A. – HPE  
Guatemala  
Phone: 502-360-3103

E+Co  
383 Franklin Street  
Bloomfield, NJ 07003 USA  
Phone: 973-680-9100  
Fax: 973-680-8066  
E-mail: [eco@energyhouse.com](mailto:eco@energyhouse.com)